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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,388

06/15/2005

Dirk Jan Broer

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07/21/2008

PHILIPS INTELLECTUAL PROPERTY & STANDARDS

P.O. BOX 3001

BRIARCLIFF MANOR, NY 10510

EXAMINER

PINKNEY, DAWAYNE

ART UNIT

PAPER NUMBER

2873

MAIL DATE

DELIVERY MODE

07/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/539,388	Applicant(s) BROER ET AL.	
	Examiner DAWAYNE A. PINKNEY	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) 9-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06/15/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>03/29/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1-8 in the reply filed on 04/21/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 03/29/2007 has been considered by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin-Johnson (US 6, 236, 491; already of record).

Regarding **claim 1**, Goodwin-Johnson discloses, a micro-mechanical thermal structure comprising two layers of material with different thermal expansion coefficients in a first direction and a second direction respectively (Column 7, lines 7-31).

Although Goodwin-Johnson does not explicitly disclose the first direction is transverse to the second direction and the two layers comprising an oriented polymer whereby the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer, it would have been obvious to one of ordinary skill in the art that the first direction is transverse to the second direction and the two layers comprising an oriented polymer whereby the director of the molecules of the oriented polymer of the first layer is transverse to the director of the molecules of the oriented polymer of the second layer since Goodwin-Johnson discloses that when a temperature change in the layers of material with different thermal expansion coefficients of the micro-mechanical thermal structure causes them to bend (Column 7, lines 7-31, and Fig. 1).

Regarding **claim 5**, Goodwin-Johnson discloses, a micro-mechanical thermal structure as claimed in claim 1 wherein the director of the liquid crystalline molecules is parallel to the layers (Column 7, lines 7-31, and Fig. 1).

Regarding **claim 6**, Goodwin-Johnson discloses, thermo-optical modulator comprising a plurality of micro-mechanical thermal structures as claimed in claim 1 ordered on a substrate (Fig. 8).

Regarding **claim 7**, Goodwin-Johnson discloses, thermo-optical modulator as claimed in claim 6 wherein the layers are provided with a reflective coating or an absorbing coating (Column 10, lines 60-67, and Fig. 8).

Regarding **claim 8**, Goodwin-Johnson discloses, thermo-optical modulator as claimed in claim 6 wherein the oriented polymer layers comprise a dichroic guest-host dye for absorbing light (Column 10, lines 60-67).

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodwin-Johnson (US 6, 236, 491; already of record) as applied to claim 1 above, in view of Chartoff et al. (US 6, 423, 260; already of record).

Goodwin-Johnson remains as applied to **claim 1 above**.

Goodwin-Johnson does not disclose the oriented polymer comprises a liquid crystalline polymeric material, and the liquid crystalline molecules are splay oriented with the director at one side of the single layer being oriented parallel to the single layer and the director at the other side of the single layer being oriented perpendicular to the single layer.

Chartoff teaches, from the same field of endeavor that in micro-mechanical thermal structure it would be desirable for the oriented polymer comprises a liquid crystalline polymeric material (Column 2, lines 31-39, and Column 10, lines 20-52), and the liquid crystalline molecules are splay oriented with the director at one side of the single layer being oriented parallel to the single layer and the director at the other side of the single layer being oriented perpendicular to the single layer (Column 2, lines 31-39, and Column 10, lines 20-52) for the purpose of providing a micro-mechanical thermal structure with greater mechanical strength and stiffness (Column 2, lines 25-27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the oriented polymer comprises a liquid crystalline polymeric material, and the liquid crystalline molecules are splay oriented with the director at one side of the single layer being oriented parallel to the single layer and the director at the other side of the single layer being oriented perpendicular to the single layer as taught by the micro-mechanical

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thermal structure of Chartoff in the micro-mechanical thermal structure of Goodwin-Johnson since Chartoff teaches it is known to include these features in a micro-mechanical thermal structure for providing a micro-mechanical thermal structure with greater mechanical strength and stiffness (Column 2, lines 25-27).

Regarding **claim 3**, Goodwin-Johnson and Chartoff teach and disclose as set forth above, and Goodwin-Johnson further discloses, a micro-mechanical thermal structure as claimed in claim 1 wherein the two layers constitute a single layer wherein the director of the liquid crystalline molecules on one side of the single layer is rotated with respect to the director of the liquid crystalline molecules on the opposite side of the single layer (Column 7, lines 7-31).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAWAYNE A. PINKNEY whose telephone number is (571)270-1305. The examiner can normally be reached on Monday-Thurs. 8 a.m.- 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott J. Sugarman/
Primary Examiner, Art Unit 2873

/DaWayne A Pinkney/
Examiner, Art Unit 2873
07/16/2008